

Personal Computing: Philosophy and Practice

Exploring the World of the Personal Computer, J. M. Nilles, Prentice-Hall, Inc., Englewood Cliffs, NJ 07632, 1982. 234 pp. (ISBN 0-13-297572-6, \$12.95).

IBM Personal Computer: An Introduction to Programming and Applications, L. J. Goldstein and M. Goldstein, Robert J. Brady Company, a Prentice-Hall Publication and Communication Company, Bowie, MD 20715, 1982. 320 pp. (ISBN 0-89303-111-9, \$14.95).

Books

The two books are different in that they address different facets of personal computing. Both are intended for the recent entrant into personal computing and both are carefully crafted by authors who are enthusiastic about personal computing and who respect the intelligence of their intended audience. As such, they are valuable as a way of introducing the personal computer for the family of a computer professional who has purchased a personal computer. But these books are also useful for computer professionals themselves, because both books stimulate thinking about personal computing in ways that might not otherwise be considered. In an oversimplified sense, the book by Nilles discusses the why of personal computing, while the Goldsteins describe how to use a personal computer (specifically an IBM Personal Computer).

The book by Nilles is geared to the general public and gives an overview of the computer, with special emphasis on the small personal computer. It discusses computers from a sociological rather than a technical point of view. Nilles opens by pointing out that with our society's evolution from agrarian to manufacturing, our need for information has increased so much that today more than half of our economic production is information. He predicts that "the demands on your time in the future will increase the pressure for more effective information handling." Since computers, he feels, are the most effective tools possible for information gathering, storing and processing, it behooves all of us to become knowledgeable about them. He sketches the development of computers, touching briefly on Babbage's analytical engine of 1830, moving on to the massive and expensive ENIAC and UNIVAC, and coming to the present time where size and price have been reduced enough to make a personal computer feasible for common usage. The consideration becomes not "can I afford one?" but "do I want one? What's in it for me?"

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The first third of the book includes a simplified nontechnical explanation of "types" of personal computers such as "stand-alone," "time sharing," or "dumb terminal," including uses by hobbyists, businesses, and home activities. It lists some of the current manufacturers and notes the ever-increasing number of machines. At this point we would have liked to have had included some photographs of actual computers. For nontechnically oriented readers, photographs are easier to understand than diagrams.

Part 2 of the book is labeled "Uses." Through a mixture of fictional scenarios and exposition, various uses of computers are illustrated. We are privy to business and personal uses. An engineer wins a contract, a secretary receives work, children do homework, students learn new material, people play games, monitor their health, protect their homes from intruders, etc., all on similar computers. The computer is thus revealed as an extremely versatile piece of equipment. Nilles' main argument here is that the computer is nonhuman, reliable, objective, accurate, dependable, and efficient and will relieve humans of untold drudgery. He does, however, admit that "drudgery" has to be defined. What is drudgery for some is not for others. Nilles makes sweeping predictions of the effect of the computer on our educational system. He lauds its use in classroom drills and deplores the slow growth of its use in our schools nationwide. But he does not demonstrate that the computer is necessarily better. As a matter of fact, many educators are reserving judgment until "intelligent" Computer Assisted Instruction is developed.

The last third of the book is subtitled "Reflections." In this part Nilles touches upon those negative issues that have been raised concerning computers, including the possible unfavorable impact that computers may have upon our life. He mentions problems, tries to present both sides objectively, hints at possible solutions, and then leaves it up to the reader to explore the issues further and form conclusions.

He conjectures how information about individuals gathered bit by bit during one's myriad activities, over a period of time, can be compiled, stored, and through use of computer methods disseminated throughout the U.S. or even the world, to whomever asks for it. Indiscriminate use of this material can become an invasion of privacy and may lead to serious problems. As Nilles points out, Congress has already recognized that the public needs legal protection to safeguard "personal privacy." The "invasion of privacy" issue is one that shouldn't be taken lightly. It will need much sober reflection and careful handling.

Another reflection of Nilles, however, is one with which we disagree. He feels that the socio-economic gulf between "haves" and "have-nots" would be widened even more by the Personal Computer because the computer and the tools to use it (programming

languages, for example) would be available much more readily to the more affluent. His examples are such oversimplifications that they are difficult to rebut except by generalizations. Dropouts, juvenile delinquents, drug addicts, etc., come from all walks of society, with a large share from the "middle classes." It is easier to fantasize being a space pilot, a scientist, a movie actor, a rock and roll singer, than to work hard to achieve a good basic education (no pun intended). One can always substitute excuses and place blame for one's own failure upon "the system." The economic impact of Personal Computers on U.S. and global trade is, of course, very important.

Nilles cites views that the U.S. technological lead is in danger of being lost. He agrees that hardware innovation comes much faster than software innovation and that in order to assimilate this personal computer revolution, there is much to be done. New skills have to be learned, people have to be retrained, education has to be revised, sales stimulated, etc. This is more than just economic. It is socio-economic. Nilles touches a bit on two other computer problems, computer breakdown and computer crime, both of which can be devastating to the businessman who lacks adequate backup and protection.

The book contains a short epilogue in which Nilles leaves us with the message that the computer is here to stay, is a powerful tool, and is up to us to control. "Personal computers can be great friends. But look out for their sting. You choose." There is a bibliography at the end of the book and also a glossary of computer terms, both of which are helpful. The book is well written, uses nontechnical language, and is interspersed with interesting scenarios.

The Goldstein book is specifically directed at the IBM Personal Computer. It is intended as a self-study tutorial for the novice and contains exercises for the reader. Since it is intended for the beginner, the programming language is BASIC. It is best to read this book with a PC at hand. However, we tried the experiment and we are convinced that a novice can read the book without a PC and get a great deal of valuable information from it. The specific nature of the book, aimed at a particular personal computer, is an important part of its value. But the book can be used by someone who does not own a PC and who wants to learn something about personal computing before obtaining one. We believe the specific nature of the book is an advantage over generalized treatments in conveying meaning to a novice.

Chapter 1 is very good and very readable. The diagrams and pictures are appropriate and helpful and seem to have been done with care and consideration for an inexperienced reader. Nice touches are the explanation of the difference between O (the letter) and Ø (the number); the description of the ENTER key symbol (↵), and the discussion of the shift keys (⇧) and the backspace (←) with a warning not to confuse them with the up-arrow (↑) or the left arrow (←) on the numeric key pad. The authors also warn against the error of using

CAPS and forgetting that the uppercase of l is !. On a personal, and perhaps nostalgic, note we regret that the authors did not choose to mention "bootstrap" and "IPL" while discussing the simultaneous use of CTRL, ALT, and DEL to "start over." Exercises, which are a prominent feature of the book, are provided even for this introduction. In this first chapter, the authors make a number of promises for the rest of the book, and it is pleasant to report that they appear to have kept those promises.

Chapters 2, 3, and 4 constitute a very nice and concise (100 pages) introduction to programming in BASIC. The discussion of random number generation is well done. They title that section "Gambling with your Computer." A forward reference to the use of the real time clock as the seed for the random numbers, which is adequately treated in the chapter on Computer Games, would have been useful. We enjoyed the title used for discussing the IF . . . THEN . . . ELSE statement. They called it "Letting Your Computer Make Decisions." The fourth chapter, "Easing Programming Frustrations" is a valuable addition to the book. Their implied suggestion that novices could use TRACE and DEBUG programs clearly labels the authors as optimists. It is one of many examples where the authors show their respect for the reader whom they expect to be a novice. The Tests of Understanding and the Exercises are done well and inserted in the text appropriately.

Other chapters of the book are equally innovative and imaginative. Their chapters on Computer Graphics, while kept elementary, nonetheless show that useful graphics can be easily prepared on the PC even by a beginner. The discussion of VISICALC is helpful to someone who wants to decide whether or not to use it. The chapter on Data Files is instructive, as is the one on Word Processing. In the Word Processing chapter, the authors flatly state that it is impractical for the reader to build a word processor. They then provide "A Do It Yourself Word Processor" which clearly explains what a word processor can do and would, as they suggest, whet the appetite of anyone who played with it.

In general, the book was so enjoyable that it seems unfair to quibble about a few lapses and to complain about some incomplete treatments. One quibble is that the opening statement of the introduction, which begins "The computer age is barely thirty years old . . ." is just wrong. Some of us remember the first meeting of what is now the IEEE Computer Society in 1947, 35 years ago; and the computer age clearly began before that. Another quibble is that the book contains the usual number of typographical errors and misstatements found in first editions. This is unfortunate but expected, and does not hinder the use of the book. An errata sheet would be appreciated.

Chapter 10 on Simulation is sketchy and incomplete. Perhaps it would have been better to omit the chapter entirely, with only a brief

mention in Chapter 13, "Some Other Applications of Your Computer." In future revisions, if the chapter is retained, it should be expanded (only a few pages would be needed) to talk about modeling, validation, and interpretation. Simulation is not a tool for a novice.

Chapters 13 and 14 are as well written as the rest of the book, but they are so attenuated that one suspects that the authors had an imposed upper limit of 300 pages which they struggled to achieve. A pity, because we would have liked to have had the views of the authors on other aspects of personal computing.

On the positive side, the chapter on Computer Games is a model of what excellence can be achieved in a carefully crafted chapter. The discussion of the real time clock and its use for randomization is excellent. The TIC TAC TOE game is a valuable exercise for the beginner to help in becoming better acquainted with the capability of BASIC in a personal computer. The back cover notes that a diskette with 37 programs from the book is available, but we did not have access to it.

Both books, each in its own way, are useful and would be worthwhile additions to a home library.

Rosetta L. Winkler and Stanley Winkler

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